# BTEC Assignment Brief

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| **Qualification** | Pearson BTEC International Level 3 Subsidiary Diploma in Engineering<br>Pearson BTEC International Level 3 Foundation Diploma in Engineering<br>Pearson BTEC International Level 3 Diploma in Engineering<br>Pearson BTEC International Level 3 Diploma in Electrical/Electronic Engineering<br>Pearson BTEC International Level 3 Diploma in Mechanical Engineering<br>Pearson BTEC International Level 3 Diploma in Digital Engineering<br>Pearson BTEC International Level 3 Diploma in Manufacturing Engineering<br>Pearson BTEC International Level 3 Diploma in Aeronautical Engineering<br>Pearson BTEC International Level 3 Extended Diploma in Engineering<br>Pearson BTEC International Level 3 Extended Diploma in Electrical/Electronic Engineering<br>Pearson BTEC International Level 3 Extended Diploma in Mechanical Engineering<br>Pearson BTEC International Level 3 Extended Diploma in Digital Engineering<br>Pearson BTEC International Level 3 Extended Diploma in Manufacturing Engineering<br>Pearson BTEC International Level 3 Extended Diploma in Aeronautical Engineering |
| **Unit number and title** | **Unit 35: Computer Programming** |
| **Learning aim(s)** | **B:** Design a software program based on user requirements to solve a problem.<br>**C:** Develop a software program to solve a problem. |
| **Assignment title** | Design and implementation of a software solution |
| **Assessor** | |
| **Issue date** | |
| **Hand in deadline** | |

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| **Vocational Scenario or Context** | You are employed as a trainee Software Developer and have been tasked with heading up a software development team to design, develop and deliver a software solution for an internal problem.<br>The Stock Control Department has requested an upgraded software solution to their aging stock control system. They currently use a series of spreadsheets to control the incoming and outgoing stock in the company. They require a more appropriate solution, using a simple database and an easy to use User Interface. The database will be provided to you by the company's database administrator (DBA). |
| **Task 1** | Design and develop the software program, providing documented user requirements. Carry out each individual stage for the Design, Development and Testing phases of the project. |

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| | For the design phase:<br>• Prepare a project time plan to develop the software program<br>• Prepare a terms of reference document to outline:<br>o Specification and user requirements of the desired program<br>o Structured pseudo code, flow charts and decision tables<br>o Justifications on choice of language<br>o Description of the deliverables, including the target user platform<br>• Prepare a system requirements specification for development and end use<br>• Produce user interface mock-ups of the new software program and design the program using structured design tools.<br><br>For the development phase:<br>•Use at least two programming paradigms, and a range of appropriate constructs to develop the designed software program, integrating into the provided data source, with appropriate comments and annotations to support future development.<br>• As you develop the software, create test scripts of the expected and unexpected conditions the software program will operate under.<br><br>For the testing phase:<br>• Test the implemented software program following the planned test scripts and client requirements, and review any failed tests and repair the software program as required to optimise its efficiency and performance. |
| **Checklist of evidence required** | Project plan / Gantt chart for the project lifecycle<br>Terms of reference documentation<br>UI Mockups portfolio with annotations<br>Test scripts, results and annotated fixes<br>Source code with binaries that can be executed |

| **Criteria covered by this task:** | |
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| Unit/Criteria reference | To achieve the criteria you must show that you are able to: |
| 35/BC.D2 | Optimise a functional, useable, fully-annotated and efficient software program that operates as intended with some consideration for unexpected events, using a comprehensive set of design documents including a project plan and test scripts. |
| 35/B.M2 | Analyse the user requirements, identifying areas where potential pitfalls could occur. |
| 35/B.M3 | Design a new software program with an effective user interface to meet a client brief, including a project plan and test scripts. |
| 35/C.M4 | Build a software program with an effective user interface, using the designs and multiple programming paradigms to solve a problem. |
| 35/C.M5 | Perform regression tests on the software program, repairing any functional and usability faults. |
| 35/B.P2 | Explain the user requirements for a new software program. |
| 35/B.P3 | Design a new software program with a user interface to meet a client brief, including an outline project plan and test scripts. |
| 35/C.P4 | Build a software program, using the designs and multiple programming |

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| | paradigms to solve a problem. |
| 35/C.P5 | Perform tests on the software program against the user requirements, repairing functional faults. |
| **Sources of information to support you with this Assignment** | Khan Academy (https://www.khanacademy.org/)<br><br>Stack Overflow (http://stackoverflow.com/) - answers to common programming questions<br><br>Codecademy (https://www.codecademy.com/)<br><br>MSDN (https://msdn.microsoft.com/en-GB/)<br><br>Agile (http://www.agilealliance.org/) |